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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/814,590	03/22/2001	Atul Garg	E0876	3726

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EXAMINER	
TRAN, KHANH C	

ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/814,590	GARG ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8-10,15,16 and 19-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *15,16 and 20* is/are allowed.

6)☒ Claim(s) *1-4,8,9,19 and 21* is/are rejected.

7)☒ Claim(s) *5,6 and 10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment filed on 02/01/2005 has been entered. Claims 1-6, 8-10, 15-16 and 19-21 are pending in this Office action.

Response to Arguments

2. The objection of claim 19 has been withdrawn after claims are amended to correct informalities.

3. Applicant's arguments with respect to claims 1-4, 8-9, 19 and 21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-4, 8-9, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koslov et al. U.S. Patent 5,978,420 in view of Koslov et al. in another U.S. Patent 6,236,283.

Regarding claim 1, Koslov et al. invention is for implementing and controlling digital filters suitable for use in modulators. As shown in figure 4, see column 4 line 51 through column 5 line 38, Koslov et al. discloses a modulator 100 including:

- a symbol mapping circuit 102, wherein the mapping circuit 102 generates in-phase (I) and quadrature (Q) phase signals.
- a complex mixer 106 for mixing the in-phase (I) and quadrature (Q) phase signals to generate frequency shifted data signals;
- an interpolator 115 for increasing the frequency of the frequency shifted data signals. The interpolator 115 corresponds to the claimed upsampler circuit.
- a bandpass filter 117 for filtering the frequency shifted data signals to generate a digital representation of the modulated carrier signal. Figure 6 further shows details of the stages of the interpolation circuit that includes adjustable pass-band filter circuit in each stage. As disclosed in column 7, lines 5-20, one ore more filter configuration control signals, e.g. filter band select signals, are supplied to each of the filter circuits 206, 212, 222 to *control each individual filter's transfer function, e.g. by altering filter coefficient values*. In light of the aforementioned teachings, filter coefficient values of I and Q components are stored in a matrix as appreciated by one of ordinary skill in the art. Furthermore, the pass-band filter circuit has a finite impulse response filter.

- Koslov et al. does not disclose a scaler as set forth in the application claim. In another US Patent, Koslov et al. teaches a very similar structure, shown in figure 2, including a flexible pulse shaping / resampling circuit 204 to accommodate a wide range of variable input baud rates. In column 6, lines 40-60, the resampling circuit generates re-sampled output signal having a sample rate, which is higher than the input sample baud rates. In view of the foregoing discussion, *because the resampling circuit generates re-sampled output signal having a sample rate, which is higher than the input sample baud rates, one of ordinary skill in the art would have recognized that the resampling circuit performs function as a scaler to produce a re-sampled signal at higher baud rate*. Koslov et al. teaches both inventions in the same field of endeavor. The difference between the two inventions is in that U.S. Patent 6,236,283 does not disclose I and Q components. Nevertheless, because Koslov et al. teaches in the US Patent '420 that the invention applies to the complex signal, a person of average skill in the art would have recognized that U.S. Patent 6,236,283 can be modified to apply to a complex signal. Furthermore, as taught in U.S. Patent 6,236,283 that the flexible pulse shaping / resampling circuit 204 can accommodate a wide range of variable input baud rates, it would have been obvious for one of ordinary skill in the art at the time of invention that both invention can be modified to combine.

Regarding claim 2, referring to figure 4 of US Patent '420, Koslov et al. teaches I and Q components are applied in each stage to generate I and Q components as set forth in the claim.

Regarding claim 3, referring to figure 4 of US Patent '420, the input signal is digital and can be wide range of variable input baud rates. In view of that, the claimed limitation is within Koslov et al. teaching.

Regarding claim 4, as well known in the art, I and Q components are relatively balanced as part of circuit design. Therefore, the resampling circuit 204 provides the scaled signals having similar signal strength independent of baud rate.

Regarding claim 8, Koslov et al. does not teach specific baud rates and sampling frequency as claimed. However, figure 3 of US Patent '283 illustrates a plot of upsampling ratios used for a plurality of input baud rates. In light of Koslov et al. teachings, the claimed limitations are also found obvious in view of Koslov et al. teachings.

Regarding claim 9, claim 9 is rejected on the same ground as for claim 8 because of similar scope.

Regarding claim 19, claim 19 is rejected on the same ground as for claim 9 because of similar scope.

Regarding claim 21, claim 21 is rejected on the same ground as for claim 1 because of similar scope.

Allowable Subject Matter

5. Claims 5-6, 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 15-16 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 15, claim is allowed over prior art of record because the cited references do not teach or suggest the claimed step of "*complex mixing the scaled data signal as set forth in the application claim*".

7. Claim 20 is allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, claim is allowed over prior art of record because the cited references do not teach or suggest the claimed step of "*wherein: the finite impulse response filtering is 16 tap filtering and each set of filter coefficients includes 9 non-zero coefficients, each coefficient being a 10 bit coefficient*".

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khanh cong Tran 06/09/2005

Examiner KHANH TRAN